

Temporal variability of upper-level winds at the Eastern Range, Western Range and Wallops Flight Facility.

Space launch vehicles incorporate upper-level wind profiles to determine wind effects on the vehicle and for a commit to launch decision. These assessments incorporate wind profiles measured hours prior to launch and may not represent the actual wind the vehicle will fly through. Uncertainty in the upper-level winds over the time period between the assessment and launch can be mitigated by a statistical analysis of wind change over time periods of interest using historical data from the launch range. Five sets of temporal wind pairs at various times (.75, 1.5, 2, 3 and 4-hrs) at the Eastern Range, Western Range and Wallops Flight Facility were developed for use in upper-level wind assessments. Database development procedures as well as statistical analysis of temporal wind variability at each launch range will be presented.